

SEQUENCE LISTING

<110> Rowe, Peter S. N.

<120> REGULATION OF TISSUE MINERALIZATION AND
PHOSPHATE METABOLISM BY ASARM PEPTIDES

<130> 21105.0011U2

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<151> 2003-09-19

<160> 24

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 19

<212> PRT

<213> Homo sapien

<400> 1

Arg Asp Asp Ser Ser Glu Ser Ser Asp Ser Gly Ser Ser Ser Glu Ser
1 5 10 15
Asp Gly Asp

<210> 2

<211> 18

<212> PRT

<213> Mus musculus

<400> 2

Arg Asp Ser Ser Glu Ser Ser Ser Ser Gly Ser Ser Ser Glu Ser His
1 5 10 15
Gly Asp

<210> 3

<211> 18

<212> PRT

<213> Rattus norvegicus

<400> 3

Arg Asp Ser Ser Glu Ser Ser Ser Ser Gly Ser Ser Ser Glu Ser Ser
1 5 10 15
Gly Asp

<210> 4

<211> 24

<212> PRT

<213> Homo sapien

<400> 4
Phe Ser Ser Arg Arg Arg Asp Asp Ser Ser Glu Ser Ser Asp Ser Gly
1 5 10 15
Ser Ser Ser Glu Ser Asp Gly Asp
20

<210> 5
<211> 25
<212> PRT
<213> Homo sapien

<400> 5
Cys Phe Ser Ser Arg Arg Arg Asp Asp Ser Ser Glu Ser Ser Asp Ser
1 5 10 15
Gly Ser Ser Ser Glu Ser Asp Gly Asp
20 25

<210> 6
<211> 26
<212> PRT
<213> Homo sapien

<400> 6
Cys Gly Ser Gly Tyr Thr Asp Leu Gln Glu Arg Gly Asp Asn Asp Ile
1 5 10 15
Ser Pro Phe Ser Gly Asp Gly Gln Pro Phe
20 25

<210> 7
<211> 5
<212> PRT
<213> Homo sapien

<400> 7
Ala Pro Thr Phe Gln
1 5

<210> 8
<211> 5
<212> PRT
<213> Homo sapien

<400> 8
Asp Ser Glu Ser Ser
1 5

<210> 9
<211> 5
<212> PRT
<213> Homo sapien

<400> 9
Ser Ser Ser Glu Ser
1 5

<210> 10
<211> 15
<212> PRT

<213> Homo sapien

<400> 10

Ala	Pro	Thr	Phe	Gln	Pro	Gln	Thr	Glu	Lys	Thr	Lys	Gln	Ser	Cys
1				5					10					15

<210> 11

<211> 19

<212> PRT

<213> Homo sapien

<400> 11

Thr	Asp	Leu	Gln	Glu	Arg	Gly	Asp	Asn	Asp	Ile	Ser	Pro	Phe	Ser	Gly
1				5					10					15	

Asp Gly Gln

<210> 12

<211> 19

<212> PRT

<213> Homo sapien

<400> 12

Gly	Arg	Gln	Pro	His	Ser	Asn	Arg	Arg	Phe	Ser	Ser	Arg	Arg	Arg	Asp
1				5					10					15	

Asp Ser Ser

<210> 13

<211> 18

<212> PRT

<213> Homo sapien

<400> 13

Asp	Asp	Ser	Ser	Glu	Ser	Ser	Asp	Ser	Gly	Ser	Ser	Ser	Glu	Ser	Asp
1				5					10					15	

Gly Asp

<210> 14

<211> 19

<212> PRT

<213> Homo sapien

<220>

<221> VARIANT

<222> 12, 14, 16

<223> Xaa = a phosphorylated serine

<400> 14

Arg	Asp	Asp	Ser	Ser	Glu	Ser	Ser	Asp	Ser	Gly	Xaa	Ser	Xaa	Glu	Xaa
1				5					10					15	

Asp Gly Asp

<210> 15

<211> 25

<212> PRT

<213> Homo sapien

<400> 15

Gly Ser Gly Tyr Thr Asp Leu Gln Glu Arg Gly Asp Asn Asp Ile Ser
 1 5 10 15
 Pro Phe Ser Gly Asp Gly Gln Pro Phe
 20 25

<210> 16

<211> 19

<212> PRT

<213> Macaca fascicularis

<400> 16

Arg Glu Asp Ser Ser Glu Ser Ser Asp Ser Gly Ser Ser Ser Glu Ser
 1 5 10 15
 Asp Gly Asp

<210> 17

<211> 525

<212> PRT

<213> Homo sapien

<400> 17

Met Arg Val Phe Cys Val Gly Leu Leu Leu Phe Ser Val Thr Trp Ala
 1 5 10 15
 Ala Pro Thr Phe Gln Pro Gln Thr Glu Lys Thr Lys Gln Ser Cys Val
 20 25 30
 Glu Glu Gln Arg Gln Glu Glu Lys Asn Lys Asp Asn Ile Gly Phe His
 35 40 45
 His Leu Gly Lys Arg Ile Asn Gln Glu Leu Ser Ser Lys Glu Asn Ile
 50 55 60
 Val Gln Glu Arg Lys Lys Asp Leu Ser Leu Ser Glu Ala Ser Glu Asn
 65 70 75 80
 Lys Gly Ser Ser Lys Ser Gln Asn Tyr Phe Thr Asn Arg Gln Arg Leu
 85 90 95
 Asn Lys Glu Tyr Ser Ile Ser Asn Lys Glu Asn Thr His Asn Gly Leu
 100 105 110
 Arg Met Ser Ile Tyr Pro Lys Ser Thr Gly Asn Lys Gly Phe Glu Asp
 115 120 125
 Gly Asp Asp Ala Ile Ser Lys Leu His Asp Gln Glu Glu Tyr Gly Ala
 130 135 140
 Ala Leu Ile Arg Asn Asn Met Gln His Ile Met Gly Pro Val Thr Ala
 145 150 155 160
 Ile Lys Leu Leu Gly Glu Glu Asn Lys Glu Asn Thr Pro Arg Asn Val
 165 170 175
 Leu Asn Ile Ile Pro Ala Ser Met Asn Tyr Ala Lys Ala His Ser Lys
 180 185 190
 Asp Lys Lys Lys Pro Gln Arg Asp Ser Gln Ala Gln Lys Ser Pro Val
 195 200 205
 Lys Ser Lys Ser Thr His Arg Ile Gln His Asn Ile Asp Tyr Leu Lys
 210 215 220
 His Leu Ser Lys Val Lys Lys Ile Pro Ser Asp Phe Glu Gly Ser Gly
 225 230 235 240
 Tyr Thr Asp Leu Gln Glu Arg Gly Asp Asn Asp Ile Ser Pro Phe Ser
 245 250 255
 Gly Asp Gly Gln Pro Phe Lys Asp Ile Pro Gly Lys Gly Glu Ala Thr
 260 265 270

Gly Pro Asp Leu Glu Gly Lys Asp Ile Gln Thr Gly Phe Ala Gly Pro
 275 280 285
 Ser Glu Ala Glu Ser Thr His Leu Asp Thr Lys Lys Pro Gly Tyr Asn
 290 295 300
 Glu Ile Pro Glu Arg Glu Glu Asn Gly Gly Asn Thr Ile Gly Thr Arg
 305 310 315 320
 Asp Glu Thr Ala Lys Glu Ala Asp Ala Val Asp Val Ser Leu Val Glu
 325 330 335
 Gly Ser Asn Asp Ile Met Gly Ser Thr Asn Phe Lys Glu Leu Pro Gly
 340 345 350
 Arg Glu Gly Asn Arg Val Asp Ala Gly Ser Gln Asn Ala His Gln Gly
 355 360 365
 Lys Val Glu Phe His Tyr Pro Ala Pro Ser Lys Glu Lys Arg Lys
 370 375 380
 Glu Gly Ser Ser Asp Ala Ala Glu Ser Thr Asn Tyr Asn Glu Ile Pro
 385 390 395 400
 Lys Asn Gly Lys Gly Ser Thr Arg Lys Gly Val Asp His Ser Asn Arg
 405 410 415
 Asn Gln Ala Thr Leu Asn Glu Lys Gln Arg Phe Pro Ser Lys Gly Lys
 420 425 430
 Ser Gln Gly Leu Pro Ile Pro Ser Arg Gly Leu Asp Asn Glu Ile Lys
 435 440 445
 Asn Glu Met Asp Ser Phe Asn Gly Pro Ser His Glu Asn Ile Ile Thr
 450 455 460
 His Gly Arg Lys Tyr His Tyr Val Pro His Arg Gln Asn Asn Ser Thr
 465 470 475 480
 Arg Asn Lys Gly Met Pro Gln Gly Lys Gly Ser Trp Gly Arg Gln Pro
 485 490 495
 His Ser Asn Arg Arg Phe Ser Ser Arg Arg Asp Asp Ser Ser Glu
 500 505 510
 Ser Ser Asp Ser Gly Ser Ser Ser Glu Ser Asp Gly Asp
 515 520 525

<210> 18
 <211> 433
 <212> PRT
 <213> Mus musculus

<400> 18
 Met Gln Ala Val Ser Val Gly Leu Leu Leu Phe Ser Met Thr Trp Ala
 1 5 10 15
 Ala Pro Met Pro Asn Glu Asp Arg Ser Ser Cys Gly Asn Gln Asp Ser
 20 25 30
 Ile His Lys Asp Leu Ala Ala Ser Val Tyr Pro Asp Pro Thr Val Asp
 35 40 45
 Glu Gly Thr Glu Asp Gly Gln Gly Ala Leu Leu His Pro Pro Gly Gln
 50 55 60
 Asp Arg Tyr Gly Ala Ala Leu Leu Arg Asn Ile Thr Gln Pro Val Lys
 65 70 75 80
 Ser Leu Val Thr Gly Ala Glu Leu Arg Arg Glu Gly Asn Gln Glu Lys
 85 90 95
 Arg Pro Gln Ser Val Leu Ser Val Ile Pro Ala Asp Val Asn Asp Ala
 100 105 110
 Lys Val Ser Leu Lys Asp Ile Lys Asn Gln Glu Ser Tyr Leu Leu Thr
 115 120 125
 Gln Ser Ser Pro Val Lys Ser Lys His Thr Lys His Thr Arg Gln Thr
 130 135 140
 Arg Arg Ser Thr His Tyr Leu Thr His Leu Pro Gln Ile Lys Lys Thr
 145 150 155 160
 Pro Ser Asp Leu Glu Gly Ser Gly Ser Pro Asp Leu Leu Val Arg Gly
 165 170 175

Asp Asn Asp Val Pro Pro Phe Ser Gly Asp Gly Gln His Phe Met His
 180 185 190
 Ile Pro Gly Lys Gly Gly Ala Gly Ser Gly Pro Glu Ser Ser Thr Ser
 195 200 205
 Arg Pro Leu Ser Gly Ser Ser Lys Ala Glu Val Ile Asp Pro His Met
 210 215 220
 Ser Gly Leu Gly Ser Asn Glu Ile Pro Gly Arg Glu Gly His Gly Gly
 225 230 235 240
 Ser Ala Tyr Ala Thr Arg Asp Lys Ala Ala Gln Gly Ala Gly Ser Ala
 245 250 255
 Gly Gly Ser Leu Val Gly Gly Ser Asn Glu Ile Thr Gly Ser Thr Asn
 260 265 270
 Phe Arg Glu Leu Pro Gly Lys Glu Gly Asn Arg Ile Asn Ala Gly Ser
 275 280 285
 Gln Asn Ala His Gln Gly Lys Val Glu Phe His Tyr Pro Gln Val Ala
 290 295 300
 Ser Arg Glu Lys Val Lys Gly Gly Val Glu His Ala Gly Arg Ala Gly
 305 310 315 320
 Tyr Asn Glu Ile Pro Lys Ser Ser Lys Gly Ser Ser Ser Lys Asp Ala
 325 330 335
 Glu Glu Ser Lys Gly Asn Gln Leu Thr Leu Thr Ala Ser Gln Arg Phe
 340 345 350
 Pro Gly Lys Gly Lys Ser Gln Gly Pro Ala Leu Pro Ser His Ser Leu
 355 360 365
 Ser Asn Glu Val Lys Ser Glu Glu Asn His Tyr Val Phe His Gly Gln
 370 375 380
 Asn Asn Leu Thr Pro Asn Lys Gly Met Ser Gln Arg Arg Gly Ser Trp
 385 390 395 400
 Pro Ser Arg Arg Pro Asn Ser His Arg Arg Ala Ser Thr Arg Gln Arg
 405 410 415
 Asp Ser Ser Glu Ser Ser Ser Ser Gly Ser Ser Ser Glu Ser His Gly
 420 425 430
 Asp

<210> 19
 <211> 435
 <212> PRT
 <213> Rattus norvegicus

<400> 19
 Met Gln Ala Val Ser Val Gly Leu Phe Leu Phe Ser Met Thr Trp Ala
 1 5 10 15
 Ala Pro Lys Leu Asn Glu Asp Gly Ser Ser Gly Gly Asn Gln Gly Asn
 20 25 30
 Ile His Leu Ala Ser Val Lys Pro Glu Pro Met Val Gly Lys Gly Thr
 35 40 45
 Glu Gly Gly Arg Asp Ala Pro Leu His Leu Leu Asp Gln Asn Arg Gln
 50 55 60
 Gly Ala Thr Leu Leu Arg Asn Ile Thr Gln Pro Val Lys Ser Leu Val
 65 70 75 80
 Thr Gly Thr Glu Val Gln Ser Asp Arg Asn Lys Glu Lys Lys Pro Gln
 85 90 95
 Ser Val Leu Ser Val Ile Pro Thr Asp Val His Asn Thr Asn Asp Tyr
 100 105 110
 Ser Glu Asp Thr Glu Asn Gln Gln Arg Asp Leu Leu Leu Gln Asn Ser
 115 120 125
 Pro Gly Gln Ser Lys His Thr Pro Arg Ala Arg Arg Ser Thr His Tyr
 130 135 140
 Leu Thr His Leu Pro Gln Ile Arg Lys Ile Leu Ser Asp Phe Glu Asp
 145 150 155 160

Ser Ala Ser Pro Asp Leu Leu Val Arg Gly Asp Asn Asp Val Pro Pro
 165 170 175
 Phe Ser Gly Asp Gly Gln His Phe Met His Thr Pro Asp Arg Gly Gly
 180 185 190
 Ala Val Gly Ser Asp Pro Glu Ser Ser Ala Gly His Pro Val Ser Gly
 195 200 205
 Ser Ser Asn Val Glu Ile Val Asp Pro His Thr Asn Gly Leu Gly Ser
 210 215 220
 Asn Glu Ile Pro Gly Arg Glu Gly His Ile Gly Gly Ala Tyr Ala Thr
 225 230 235 240
 Arg Gly Lys Thr Ala Gln Gly Ala Gly Ser Ala Asp Val Ser Leu Val
 245 250 255
 Glu Gly Ser Asn Glu Ile Thr Gly Ser Thr Lys Phe Arg Glu Leu Pro
 260 265 270
 Gly Lys Glu Gly Asn Arg Val Asp Ala Ser Ser Gln Asn Ala His Gln
 275 280 285
 Gly Lys Val Glu Phe His Tyr Pro Gln Ala Pro Ser Lys Glu Lys Val
 290 295 300
 Lys Gly Gly Ser Arg Glu His Thr Gly Lys Ala Gly Tyr Asn Glu Ile
 305 310 315 320
 Pro Lys Ser Ser Lys Gly Gly Ala Ser Lys Asp Ala Glu Glu Ser Lys
 325 330 335
 Gly Asn Gln Val Thr Leu Thr Glu Ser Gln Arg Phe Pro Gly Lys Gly
 340 345 350
 Lys Gly Gln Ser Ser His Ser Leu Gly Asn Glu Val Lys Ser Glu Glu
 355 360 365
 Asp Ser Ser Asn Ser Leu Ser Arg Glu Gly Ile Ala Ile Ala His Arg
 370 375 380
 Arg Thr Ser His Pro Thr Arg Asn Arg Gly Met Ser Gln Arg Arg Gly
 385 390 395 400
 Ser Trp Ala Ser Arg Arg Pro His Pro His Arg Arg Val Ser Thr Arg
 405 410 415
 Gln Arg Asp Ser Ser Glu Ser Ser Ser Ser Gly Ser Ser Ser Glu Ser
 420 425 430
 Ser Gly Asp
 435

<210> 20

<211> 555

<212> PRT

<213> Macaca fascicularis

<400> 20

Met Arg Val Phe Cys Val Gly Leu Leu Phe Leu Ser Val Thr Trp Ala
 1 5 10 15
 Ala Pro Thr Phe Gln Pro Gln Thr Glu Lys Thr Lys Gln Ser Cys Val
 20 25 30
 Glu Glu Gln Arg Ile Thr Tyr Lys Gly His His Glu Lys His Gly His
 35 40 45
 Tyr Val Phe Lys Cys Val Tyr Met Ser Pro Gly Lys Lys Asn Gln Thr
 50 55 60
 Asp Val Lys Gln Glu Glu Lys Asn Lys Asp Asn Ile Gly Leu His His
 65 70 75 80
 Leu Gly Lys Arg Arg Tyr Gln Glu Leu Ser Ser Lys Glu Asn Ile Val
 85 90 95
 Gln Glu Arg Lys Lys Asp Leu Ser Leu Ser Glu Ala Gly Glu Asn Asn
 100 105 110
 Gly Ser Ser Lys Ser Gln Asn Tyr Phe Thr Asn Arg Gln Arg Leu Asn
 115 120 125
 Lys Glu Tyr Ser Ile Ser Asn Lys Glu Asn Ile His Asn Gly Leu Arg
 130 135 140

Met	Ser	Ile	Tyr	Pro	Lys	Ser	Thr	Gly	Asn	Lys	Gln	Phe	Ala	Asp	Gly	145	150	155	160
Asp	Asp	Ala	Ile	Ser	Glu	Leu	His	Asp	Gln	Glu	Glu	Tyr	Gly	Ala	Ala	165	170	175	
Leu	Ile	Arg	Asn	Asn	Met	Gln	His	Ile	Met	Gly	Pro	Val	Thr	Ala	Ile	180	185	190	
Lys	Leu	Leu	Gly	Glu	Glu	Asn	Lys	Gln	Ser	Lys	Pro	Lys	Asn	Val	Leu	195	200	205	
Asn	Lys	Ile	Pro	Ala	Ser	Met	Asn	Tyr	Ala	Lys	Ala	His	Ser	Lys	Asp	210	215	220	
Lys	Lys	Lys	Pro	Gln	Arg	Asp	Ser	Gln	Val	Gln	Lys	Val	Pro	Val	Lys	225	230	235	240
Ser	Lys	Ser	Thr	His	Arg	Thr	Gln	His	Asn	Ile	Asp	Tyr	Pro	Lys	His	245	250	255	
Leu	Ser	Lys	Val	Lys	Lys	Ile	Pro	Ser	Asp	Phe	Glu	Gly	Ser	Gly	Tyr	260	265	270	
Thr	Asp	Leu	Gln	Glu	Arg	Gly	Asp	Asn	Asp	Met	Ser	Pro	Phe	Ser	Gly	275	280	285	
Asp	Gly	Gln	Pro	Phe	Lys	Asp	Ile	Pro	Gly	Lys	Gly	Glu	Ala	Thr	Gly	290	295	300	
Ser	Asp	Leu	Glu	Gly	Lys	Asp	Ile	Gln	Thr	Gly	Phe	Ala	Gly	Pro	Ser	305	310	315	320
Glu	Ala	Glu	Ser	Thr	Asn	Leu	Asp	Thr	Lys	Glu	Pro	Gly	Tyr	Asn	Glu	325	330	335	
Ile	Pro	Glu	Arg	Lys	Glu	Asn	Gly	Gly	Asn	Thr	Ile	Gly	Thr	Gly	Asp	340	345	350	
Glu	Thr	Ala	Lys	Glu	Ala	Asp	Ala	Val	Asp	Val	Ser	Leu	Val	Glu	Gly	355	360	365	
Asn	Asn	Asp	Ile	Met	Gly	Ser	Thr	Asn	Phe	Lys	Glu	Leu	Pro	Gly	Arg	370	375	380	
Glu	Gly	Asn	Arg	Val	Asp	Val	Gly	Gly	Gln	Asn	Ala	His	Gln	Gly	Lys	385	390	395	400
Val	Glu	Phe	His	Tyr	Pro	Pro	Ala	Pro	Ser	Lys	Glu	Lys	Arg	Lys	Glu	405	410	415	
Gly	Ser	Ser	Asp	Ala	Thr	Glu	Ser	Thr	Asn	Tyr	Asn	Glu	Ile	Pro	Lys	420	425	430	
Asn	Asp	Lys	Gly	Ser	Ala	Arg	Lys	Gly	Val	Asp	Asp	Ser	Asn	Arg	Asn	435	440	445	
Gln	Ala	Ile	Leu	His	Glu	Lys	Gln	Arg	Phe	Pro	Ser	Lys	Gly	Lys	Ser	450	455	460	
Gln	Gly	Leu	Pro	Ile	Pro	Ser	Arg	Gly	Leu	Asp	Asn	Glu	Ile	Lys	Thr	465	470	475	480
Glu	Met	Asp	Ser	Leu	Asn	Gly	Pro	Ser	Asn	Glu	Asn	Ile	Pro	His	Ser	485	490	495	
Arg	Lys	Tyr	His	Tyr	Val	Pro	His	Arg	Gln	Asn	Asn	Pro	Thr	Arg	Asn	500	505	510	
Lys	Gly	Met	Pro	His	Gly	Lys	Gly	Ser	Trp	Gly	Arg	Gln	Pro	Tyr	Ser	515	520	525	
Asn	Arg	Arg	Leu	Ser	Ser	Arg	Arg	Arg	Glu	Asp	Ser	Ser	Glu	Ser	Ser	530	535	540	
Asp	Ser	Gly	Ser	Ser	Ser	Glu	Ser	Asp	Gly	Asp						545	550	555	

<210> 21

<211> 165

<212> PRT

<213> Homo sapien

<220>

<221> VARIANT

<222> 1

<223> Xaa = T or M

<220>

<221> VARIANT

<222> 2, 3, 4

<223> Xaa = Any amino acid except Lys

<220>

<221> VARIANT

<222> 6

<223> Xaa = Y or S

<220>

<221> VARIANT

<222> 11

<223> Xaa = E or G

<220>

<221> VARIANT

<222> 13

<223> Xaa = E or K

<220>

<221> VARIANT

<222> 14, 15, 16

<223> Xaa = Any amino acid except Lys

<220>

<221> VARIANT

<222> (17)...(17)

<223> Xaa = G or I

<220>

<221> VARIANT

<222> (19)...(22)

<223> Xaa = Any amino acid except Lys

<220>

<221> VARIANT

<222> (29)...(30)

<223> Xaa = Any amino acid except Lys

<220>

<221> VARIANT

<222> (80)...(80)

<223> Xaa = P or Q

<220>

<221> VARIANT

<222> (92)...(99)

<223> Xaa = Any amino acid except Lys

<220>

<221> VARIANT

<222> (106)...(107)

<223> Xaa = Any amino acid except Lys

<220>

<221> VARIANT

<222> (110)

<223> Xaa = S or G

<220>

<221> VARIANT

<222> (111)...(112)

<223> Xaa = Any amino acid except Lys

<220>

<221> VARIANT

<222> (114)...(117)

<223> Xaa = Any amino acid except Lys

<400> 21

Xaa	Xaa	Xaa	Xaa	Gly	Xaa	Asn	Glu	Ile	Pro	Xaa	Arg	Xaa	Xaa	Xaa	Xaa
1				5					10					15	
Xaa	Gly	Xaa	Xaa	Xaa	Xaa	Thr	Arg	Asp	Glu	Thr	Ala	Xaa	Xaa	Ala	Asp
			20					25						30	
Ala	Val	Asp	Val	Ser	Leu	Val	Glu	Gly	Ser	Asn	Asp	Ile	Met	Gly	Ser
		35					40					45			
Thr	Asn	Phe	Lys	Glu	Leu	Pro	Gly	Arg	Glu	Gly	Asn	Arg	Val	Asp	Ala
	50					55					60				
Gly	Ser	Gln	Asn	Ala	His	Gln	Gly	Lys	Val	Glu	Phe	His	Tyr	Pro	Xaa
65					70					75					80
Ala	Pro	Ser	Lys	Glu	Lys	Arg	Lys	Glu	Gly	Ser	Xaa	Xaa	Xaa	Xaa	Xaa
				85						90				95	
Xaa	Xaa	Xaa	Tyr	Asn	Glu	Ile	Pro	Lys	Xaa	Xaa	Lys	Gly	Xaa	Xaa	Xaa
			100					105					110		
Lys	Xaa	Xaa	Xaa	Xaa	Ser	Asn	Arg	Asn	Gln	Ala	Thr	Leu	Asn	Glu	Lys
		115					120					125			
Gln	Arg	Phe	Pro	Ser	Lys	Gly	Lys	Ser	Gln	Gly	Leu	Pro	Ile	Pro	Ser
	130					135					140				
Arg	Gly	Leu	Asp	Asn	Glu	Ile	Lys	Asn	Glu	Met	Asp	Ser	Phe	Asn	Gly
145					150					155					160
Pro	Ser	His	Glu	Asn											
					165										

<210> 22

<211> 13

<212> PRT

<213> Homo sapien

<220>

<221> VARIANT

<222> 1

<223> Xaa = Y or S

<220>

<221> VARIANT

<222> 6

<223> Xaa = E or G

<220>

<221> VARIANT

<222> 8

<223> Xaa = E or K

<220>

<221> VARIANT

<222> (9)...(11)

<223> Xaa = Any amino acid except Lys

<220>

<221> VARIANT

<222> 12

<223> Xaa = G or I

<400> 22

Xaa Asn Glu Ile Pro Xaa Arg Xaa Xaa Xaa Xaa Xaa Gly

1

5

10

<210> 23

<211> 11

<212> PRT

<213> Homo sapien

<220>

<221> VARIANT

<222> 7, 8

<223> Xaa = Any amino acid except Lys

<220>

<221> VARIANT

<222> 11

<223> Xaa = S or G

<400> 23

Tyr Asn Glu Ile Pro Lys Xaa Xaa Lys Gly Xaa

1

5

10

<210> 24

<211> 57

<212> PRT

<213> Homo sapien

<220>

<221> VARIANT

<222> 46

<223> Xaa = P or Q

<400> 24

Asp Val Ser Leu Val Glu Gly Ser Asn Asp Ile Met Gly Ser Thr Asn

1

5

10

15

Phe Lys Glu Leu Pro Gly Arg Glu Gly Asn Arg Val Asp Ala Gly Ser

20

25

30

Gln Asn Ala His Gln Gly Lys Val Glu Phe His Tyr Pro Xaa Ala Pro

35

40

45

Ser Lys Glu Lys Arg Lys Glu Gly Ser

50

55